Amendments to Claims

WHAT IS CLAIMED IS:

1.) (Currently Amended.) A lubricant composition for use in compression refrigeration and air conditioning, comprising:

- (a) at least one lubricant selected from the group consisting of paraffins, napthenes, aromatics and poly- α -olefins;
 - (b) at least one compatibilizer selected from the group consisting of:
 - (i) polyoxyalkylene glycol ethers represented by the formula R¹[(OR²)*OR³]_y, wherein: x is selected from integers from 1 to 3; y is selected from integers from 1 to 4; R¹ is selected from hydrogen and aliphatic hydrocarbon radicals having 1 to 6 carbon atoms and y bonding sites; R² is selected from aliphatic hydrocarbylene radicals having from 2 to 4 carbon atoms; R³ is selected from hydrogen, and aliphatic and alicyclic hydrocarbon radicals having from 1 to 6 carbon atoms; at least one of R¹ and R³ is selected from said hydrocarbon radicals; and wherein said polyoxyalkylene glycol ethers have a molecular weight of from about 100 to about 300 atomic mass units and a carbon to oxygen ratio of from about 2.3 to about 5.0;
 - (ii)—amides represented by the formulae R¹CONR²R³ and cyclo-[R⁴CON(R⁵)-], wherein R¹, R², R³ and R⁵ are independently selected from aliphatic and alicyclic hydrocarbon radicals having from 1 to 12 carbon atoms; R⁴ is selected from aliphatic hydrocarbylene radicals having from 3 to 12 carbon atoms; and wherein said amides have a molecular weight of from about 120 to about 300 atomic mass units and a carbon to oxygen ratio of from about 7 to about 20,
 - (iii) ketones represented by the formula R¹COR², wherein R¹ and R² are independently selected from aliphatic, alicyclic and aryl hydrocarbon radicals having from 1 to 12 carbon atoms, and wherein said ketones have a molecular weight of from about 70 to about 300 atomic mass units and a carbon to oxygen ratio of from about 4 to about 13.
 - (iv) nitriles represented by the formula R¹CN, wherein R¹ is selected from aliphatic, alicyclic or aryl hydrocarbon radicals having from 5 to 12 carbon atoms, and wherein said nitriles have a molecular weight of from about 90 to about 200 atomic mass units and a carbon to nitrogen ratio of from about 6 to about 12,
 - (v) chlorocarbons represented by the formula RCl_x, wherein; x is selected from the integers 1 or 2; R is selected from aliphatic and alicyclic hydrocarbon radicals having from 1 to 12 carbon atoms; and wherein said chlorocarbons have a molecular weight of from about 100 to about 200 atomic mass units and carbon to chlorine ratio from about 2 to about 10,

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(vi) aryl ethers represented by the formula R¹OR², wherein: R¹ is selected from aryl hydrocarbon radicals having from 6 to 12 carbon atoms; R² is selected from aliphatic hydrocarbon radicals having from 1 to 4 carbon atoms; and wherein said aryl ethers have a molecular weight of from about 100 to about 150 atomic mass units and a carbon to oxygen ratio of from about 4 to about 20,

- (vii) 1,1,1-trifluoroalkanes represented by the formula CF₂R¹, wherein R¹-is selected from aliphatic and alicyclic hydrocarbon radicals having from about 5 to about 15 carbon atoms; and
- (viii) fluoroethers represented by the formula R¹OCF₂CF₂H, wherein R¹ is selected from aliphatic and alicyclic hydrocarbon radicals having from about 5 to about 15 carbon atoms; and

wherein the weight ratio of said lubricant to said compatibilizer is from about 99:1 to about 1:1.

- 2.) (Currently Amended.) A refrigerant composition for use in compression refrigeration and air conditioning, comprising:
- (a) at least one halogenated hydrocarbon selected from the group consisting of hydrofluorocarbons and hydrochlorofluorocarbons;
- (b) at least one lubricant selected from the group consisting of paraffins, napthenes, aromatics and poly- α -olefins; and
 - (c) at least one compatibilizer selected from the group consisting of:
 - (i) polyoxyalkylene glycol ethers represented by the formula R¹[(OR²)*OR³]_y, wherein: x is selected from integers from 1 to 3; y is selected from integers from 1 to 4; R¹ is selected from hydrogen and aliphatic hydrocarbon radicals having 1 to 6 carbon atoms and y bonding sites; R² is selected from aliphatic hydrocarbylene radicals having from 2 to 4 carbon atoms; R³ is selected from hydrogen, and aliphatic and alicyclic hydrocarbon radicals having from 1 to 6 carbon atoms; at least one of R¹ and R³ is selected from said hydrocarbon radicals; and wherein said polyoxyalkylene glycol ethers have a molecular weight of from about 100 to about 300 atomic mass units and a carbon to oxygen ratio of from about 2.3 to about 5.0;
 - (ii) amides represented by the formulae R¹CONR²R³ and cyclo-[R⁴CON(R⁵)-], wherein R¹, R², R³ and R⁵ are independently selected from aliphatic and alicyclic hydrocarbon radicals having from 1 to 12 carbon atoms; R⁴ is selected from aliphatic hydrocarbylene radicals having from 3 to 12 carbon atoms; and wherein said amides have a molecular weight of from about 120 to about 300 atomic mass units and a carbon to oxygen ratio of from about 7 to about 20,
 - (iii) ketones represented by the formula R¹COR², wherein R¹ and R² are independently selected from aliphatic, alicyclic and aryl hydrocarbon radicals having

from 1 to 12 carbon atoms, and wherein said ketones have a molecular weight of from about 70 to about 300 atomic mass units and a carbon to oxygen ratio of from about 4 to about 13,

- (iv) nitriles represented by the formula R¹CN, wherein R¹ is selected from aliphatic, alicyclic or aryl hydrocarbon radicals having from 5 to 12 carbon atoms, and wherein said nitriles have a molecular weight of from about 90 to about 200 atomic mass units and a carbon to nitrogen ratio of from about 6 to about 12,
- (v) chlorocarbons represented by the formula RCl_{*}, wherein; x is selected from the integers 1 or 2; R is selected from aliphatic and alicyclic hydrocarbon radicals having from 1 to 12 carbon atoms; and wherein said chlorocarbons have a molecular weight of from about 100 to about 200 atomic mass units and carbon to chlorine ratio from about 2 to about 10,
- (vi) aryl ethers represented by the formula R¹OR², wherein: R¹ is selected from aryl hydrocarbon radicals having from 6 to 12 carbon atoms; R² is selected from aliphatic hydrocarbon radicals having from 1 to 4 carbon atoms; and wherein said aryl ethers have a molecular weight of from about 100 to about 150 atomic mass units and a carbon to oxygen ratio of from about 4 to about 20,
- (vii) 1,1,1-trifluoroalkanes represented by the formula CF₂R¹, wherein R¹ is selected from aliphatic and alicyclic hydrocarbon radicals having from about 5 to about 15 carbon atoms; and
- (viii) fluoroethers represented by the formula R¹OCF₂CF₂H, wherein R¹ is selected from aliphatic and alicyclic hydrocarbon radicals having from about 5 to about 15 carbon atoms; and

wherein the weight ratio of said lubricant to said compatibilizer is from about 99:1 to about 1:1.

- 3.) (Currently Amended.) A refrigerant composition for use in compression refrigeration and air conditioning apparatus containing paraffinic, napthenic, aromatic and/or poly- α -olefinic lubricant, said refrigerant composition comprising:
- (a) at least one halogenated hydrocarbon selected from the group consisting of hydrofluorocarbons and hydrochlorofluorocarbons; and
 - (b) at least one compatibilizer selected from the group consisting of:
 - (i) polyoxyalkylene glycol ethers represented by the formula R¹[(OR²)*OR³]_y, wherein: x is selected from integers from 1 to 3; y is selected from integers from 1 to 4; R¹ is selected from hydrogen and aliphatic hydrocarbon radicals having 1 to 6 carbon atoms and y bonding sites; R² is selected from aliphatic hydrocarbylene radicals having from 2 to 4 carbon atoms; R³ is selected from hydrogen, and aliphatic and alicyclic hydrocarbon radicals having from 1 to 6 carbon atoms; at least one of R¹

and R³ is selected from said hydrocarbon radicals; and wherein said polyoxyalkylene glycol ethers have a molecular weight of from about 100 to about 300 atomic mass units and a carbon to oxygen ratio of from about 2.3 to about 5.0;

- (ii) amides represented by the formulae R¹CONR²R³ and cyclo-[R⁴CON(R⁵)-], wherein R¹, R², R³ and R⁵ are independently selected from aliphatic and alicyclic hydrocarbon radicals having from 1 to 12 carbon atoms; R⁴ is selected from aliphatic hydrocarbylene radicals having from 3 to 12 carbon atoms; and wherein said amides have a molecular weight of from about 120 to about 300 atomic mass units and a carbon to oxygen ratio of from about 7 to about 20₅.
- (iii) ketones represented by the formula R¹COR², wherein R¹ and R² are independently selected from aliphatic, alicyclic and aryl hydrocarbon radicals having from 1 to 12 carbon atoms, and wherein said ketones have a molecular weight of from about 70 to about 300 atomic mass units and a carbon to oxygen ratio of from about 4 to about 13,
- (iv) nitriles represented by the formula R¹CN, wherein R¹ is selected from aliphatic, alicyclic or aryl hydrocarbon radicals having from 5 to 12 carbon atoms, and wherein said nitriles have a molecular weight of from about 90 to about 200 atomic mass units and a carbon to nitrogen ratio of from about 6 to about 12,
- (v) chlorocarbons represented by the formula RCl_{*}, wherein; x is selected from the integers 1 or 2; R is selected from aliphatic and alicyclic hydrocarbon radicals having from 1 to 12 carbon atoms; and wherein said chlorocarbons have a molecular weight of from about 100 to about 200 atomic mass units and carbon to chlorine ratio from about 2 to about 10;
- (vi) aryl ethers represented by the formula R¹OR², wherein: R¹ is selected from aryl hydrocarbon radicals having from 6 to 12 carbon atoms; R² is selected from aliphatic hydrocarbon radicals having from 1 to 4 carbon atoms; and wherein said aryl ethers have a molecular weight of from about 100 to about 150 atomic mass units and a carbon to oxygen ratio of from about 4 to about 20,
- (vii) 1,1,1-trifluoroalkanes represented by the formula CF₃R¹, wherein R¹ is selected from aliphatic and alicyclic hydrocarbon radicals having from about 5 to about 15 carbon atoms; and
- (viii) fluoroethers represented by the formula R[‡]OCF₂CF₂H, wherein R[‡] is selected from aliphatic and alicyclic hydrocarbon radicals having from about 5 to about 15 carbon atoms.
- 4.) (Currently Amended.) A process for returning lubricant from a non-compressor zone to a compressor zone in a compression refrigeration system comprising:

(a) contacting a lubricant selected from the group consisting of paraffins, naphthenes, aromatics, and polyalphaolefins, in said non-compressor zone with a halogenated hydrocarbon selected from the group consisting of hydrofluorocarbons and hydrochlorofluorocarbons, in the presence of a compatibilizer to form a solution comprising said lubricant, said halogenated hydrocarbon, and said compatibilizer; and

- (b) transferring said solution from said non-compressor zone to said compressor zone of said refrigeration system; wherein said compatibilizer is selected from the group consisting of:
 - (i) polyoxyalkylene glycol ethers represented by the formula R¹[(OR²)*OR³]_y, wherein: x is selected from integers from 1 to 3; y is selected from integers from 1 to 4; R¹ is selected from hydrogen and aliphatic hydrocarbon radicals having 1 to 6 carbon atoms and y bonding sites; R² is selected from aliphatic hydrocarbylene radicals having from 2 to 4 carbon atoms; R³ is selected from hydrogen, and aliphatic and alicyclic hydrocarbon radicals having from 1 to 6 carbon atoms; at least one of R¹ and R³ is selected from said hydrocarbon radicals; and wherein said polyoxyalkylene glycol ethers have a molecular weight of from about 100 to about 300 atomic mass units and a carbon to oxygen ratio of from about 2.3 to about 5.0;
 - (ii) amides represented by the formulae R¹CONR²R³ and cyclo-[R⁴CON(R⁵)-], wherein R¹, R², R³ and R⁵ are independently selected from aliphatic and alicyclic hydrocarbon radicals having from 1 to 12 carbon atoms; R⁴ is selected from aliphatic hydrocarbylene radicals having from 3 to 12 carbon atoms; and wherein said amides have a molecular weight of from about 120 to about 300 atomic mass units and a carbon to oxygen ratio of from about 7 to about 20,
 - (iii) ketones represented by the formula R¹COR², wherein R¹ and R² are independently selected from aliphatic, alicyclic and aryl hydrocarbon radicals having from 1 to 12 carbon atoms, and wherein said ketones have a molecular weight of from about 70 to about 300 atomic mass units and a carbon to oxygen ratio of from about 4 to about 13.
 - (iv) nitriles represented by the formula R¹CN, wherein R¹ is selected from aliphatic, alicyclic or aryl hydrocarbon radicals having from 5 to 12 carbon atoms, and wherein said nitriles have a molecular weight of from about 90 to about 200 atomic mass units and a carbon to nitrogen ratio of from about 6 to about 12,
 - (v) chlorocarbons represented by the formula RCl_x, wherein; x is selected from the integers 1 or 2; R is selected from aliphatic and alicyclic hydrocarbon radicals having from 1 to 12 carbon atoms; and wherein said chlorocarbons have a molecular weight of from about 100 to about 200 atomic mass units and carbon to chlorine ratio from about 2 to about 10,

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(vi) aryl ethers represented by the formula R¹OR², wherein: R¹ is selected from aryl hydrocarbon radicals having from 6 to 12 carbon atoms; R² is selected from aliphatic hydrocarbon radicals having from 1 to 4 carbon atoms; and wherein said aryl ethers have a molecular weight of from about 100 to about 150 atomic mass units and a carbon to oxygen ratio of from about 4 to about 20,

- (vii) 1,1,1-trifluoroalkanes represented by the formula CF₂R¹, wherein R¹ is selected from aliphatic and alicyclic hydrocarbon radicals having from about 5 to about 15 carbon atoms; and
- (viii) fluoroethers represented by the formula R¹OCF₂CF₂H, wherein R¹ is selected from aliphatic and alicyclic hydrocarbon radicals having from about 5 to about 15 carbon atoms; and

wherein the weight ratio of said lubricant to said compatibilizer is from about 99:1 to about 1:1.

- 5.) (Currently Amended.) A method of solubilizing a halogenated hydrocarbon refrigerant selected from the group consisting of hydrofluorocarbons and hydrochlorofluorocarbons, in a lubricant selected from the group consisting of paraffins, naphthenes, aromatics, and polyalphaolefins, which comprises the steps of contacting said lubricant with said halogenated hydrocarbon refrigerant in the presence of an effective amount of a compatibilizer and forming a solution of said lubricant and said halogenated hydrocarbon refrigerant, wherein said compatibilizer is selected from the group consisting of:
- (i) polyoxyalkylene glycol ethers represented by the formula R¹[(OR²),OR³]_v, wherein: x is selected from integers from 1 to 3; y is selected from integers from 1 to 4; R¹ is selected from hydrogen and aliphatic hydrocarbon radicals having 1 to 6 carbon atoms and y bonding sites; R² is selected from aliphatic hydrocarbylene radicals having from 2 to 4 carbon atoms; R³ is selected from hydrogen, and aliphatic and alicyclic hydrocarbon radicals having from 1 to 6 carbon atoms; at least one of R¹ and R³ is selected from said hydrocarbon radicals; and wherein said polyoxyalkylene glycol ethers have a molecular weight of from about 100 to about 300 atomic mass units and a carbon to oxygen ratio of from about 2.3 to about 5.0;
- -(ii)-amides represented by the formulae R¹CONR²R³ and cyclo-[R⁴CON(R⁵)-], wherein R¹, R², R³ and R⁵ are independently selected from aliphatic and alicyclic hydrocarbon radicals having from 1 to 12 carbon atoms; R⁴ is selected from aliphatic hydrocarbylene radicals having from 3 to 12 carbon atoms; and wherein said amides have a molecular weight of from about 120 to about 300 atomic mass units and a carbon to oxygen ratio of from about 7 to about 20,
- (iii) ketones represented by the formula R¹COR², wherein R¹ and R² are independently selected from aliphatic, alicyclic and aryl hydrocarbon radicals having from 1

- (v) chlorocarbons represented by the formula RCl_x, wherein; x is selected from the integers 1 or 2; R is selected from aliphatic and alieyclic hydrocarbon radicals having from 1 to 12 carbon atoms; and wherein said chlorocarbons have a molecular weight of from about 100 to about 200 atomic mass units and carbon to chlorine ratio from about 2 to about 10,
- (vi) aryl ethers represented by the formula R¹OR², wherein: R¹ is selected from aryl hydrocarbon radicals having from 6 to 12 carbon atoms; R² is selected from aliphatic hydrocarbon radicals having from 1 to 4 carbon atoms; and wherein said aryl ethers have a molecular weight of from about 100 to about 150 atomic mass units and a carbon to oxygen ratio of from about 4 to about 20,
- (vii) 1,1,1-trifluoroalkanes represented by the formula CF₃R¹, wherein R¹ is selected from aliphatic and alicyclic hydrocarbon radicals having from about 5 to about 15 carbon atoms; and
- (viii) fluoroethers represented by the formula R¹OCF₂CF₂H, wherein R¹ is selected from aliphatic and alicyclic hydrocarbon radicals having from about 5 to about 15 carbon atoms; and wherein the weight ratio of said lubricant to said compatibilizer is from about 99:1 to about 1:1.
- 6.) (Currently Amended.) A method of lubricating a compressor in a compression refrigeration apparatus containing a halogenated hydrocarbon refrigerant selected from the group consisting of hydrofluorocarbons and hydrochlorofluorocarbons, comprising the step of adding to said compressor a composition comprising:
- (a) at least one lubricant selected from the group consisting of paraffins, naphthenes, aromatics, and polyalphaolefins; and
 - (b) at least one compatibilizer selected from the group consisting of:
 - (i) polyoxyalkylene glycol ethers represented by the formula R¹[(OR²)_xOR³]_y, wherein: x is selected from integers from 1 to 3; y is selected from integers from 1 to 4; R¹ is selected from hydrogen and aliphatic hydrocarbon radicals having 1 to 6 carbon atoms and y bonding sites; R² is selected from aliphatic hydrocarbylene radicals having from 2 to 4 carbon atoms; R³ is selected from hydrogen, and aliphatic and alicyclic hydrocarbon radicals having from 1 to 6 carbon atoms; at least one of R¹ and R³ is selected from said hydrocarbon radicals; and wherein said polyoxyalkylene

glycol ethers have a molecular weight of from about 100 to about 300 atomic mass units and a carbon to oxygen ratio of from about 2.3 to about 5.0;

- (ii) amides represented by the formulae R¹CONR²R³ and cyclo-[R⁴CON(R⁵)-], wherein R¹, R², R³ and R⁵ are independently selected from aliphatic and alicyclic hydrocarbon radicals having from 1 to 12 carbon atoms; R⁴ is selected from aliphatic hydrocarbylene radicals having from 3 to 12 carbon atoms; and wherein said amides have a molecular weight of from about 120 to about 300 atomic mass units and a carbon to oxygen ratio of from about 7 to about 20,
- (iii) ketones represented by the formula R¹COR², wherein R¹ and R² are independently selected from aliphatic, alicyclic and aryl hydrocarbon radicals having from 1 to 12 carbon atoms, and wherein said ketones have a molecular weight of from about 70 to about 300 atomic mass units and a carbon to oxygen ratio of from about 4 to about 13,
- (iv) nitriles represented by the formula R⁺CN, wherein R⁺ is selected from aliphatic, alicyclic or aryl hydrocarbon radicals having from 5 to 12 carbon atoms, and wherein said nitriles have a molecular weight of from about 90 to about 200 atomic mass units and a carbon to nitrogen ratio of from about 6 to about 12,
- (v) chlorocarbons represented by the formula RCl_x, wherein; x is selected from the integers 1 or 2; R is selected from aliphatic and alicyclic hydrocarbon radicals having from 1 to 12 carbon atoms; and wherein said chlorocarbons have a molecular weight of from about 100 to about 200 atomic mass units and carbon to chlorine ratio from about 2 to about 10,
- (vi) aryl ethers represented by the formula R¹OR², wherein: R¹ is selected from aryl hydrocarbon radicals having from 6 to 12 carbon atoms; R² is selected from aliphatic hydrocarbon radicals having from 1 to 4 carbon atoms; and wherein said aryl ethers have a molecular weight of from about 100 to about 150 atomic mass units and a carbon to oxygen ratio of from about 4 to about 20,
- (vii) 1,1,1-trifluoroalkanes represented by the formula CF₂R¹, wherein R¹ is selected from aliphatic and alicyclic hydrocarbon radicals having from about 5 to about 15 carbon atoms; and
- (viii) fluoroethers represented by the formula R¹OCF₂CF₂H, wherein R¹ is selected from aliphatic and alicyclic hydrocarbon radicals having from about 5 to about 15 carbon atoms; and

wherein the weight ratio of said lubricant to said compatibilizer is from about 99:1 to about 1:1.

7.) (Currently Amended.) The composition of claims 1, 2 or 3, or the process of claim 4, or the method of claim 5 or 6, wherein:

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(i) in the polyoxyalkylene glycol ethers represented by the formula $R^1[(OR^2)_*OR^3]_y$ x is selected from the integers 1 or 2, y is 1, R^1 and R^3 are independently selected from hydrogen and aliphatic hydrocarbon radicals having from 1 to 4 carbon atoms, R^2 is selected from aliphatic hydrocarbylene radicals having 2 or 3 carbon atoms, and wherein said polyoxyalkylene glycol ethers have a molecular weight of from about 100 to about 250 atomic mass units and a carbon to oxygen ratio of from about 2.5 to about 4.0;

- (ii) said amides have a molecular weight of from about 160 to about 250 atomic mass units and a carbon to oxygen ratio of from about 7 to about 165.
- (iii) in the ketones represented by the formula R¹COR², R¹-and R²-are independently selected from aliphatic and alicyclic hydrocarbon radicals having from 1 to 9 carbon atoms, and wherein said ketones have a molecular weight of from about 100 to 200 atomic mass units and a carbon to oxygen ratio of from about 7 to about 10;
- (iv) in the nitriles represented by the formula R¹CN, R¹ is selected from aliphatic and alicyclic hydrocarbon radicals having from 8 to 10 carbon atoms, and wherein said nitriles have a molecular weight of from about 120 to about 140 atomic mass units and a carbon to nitrogen ratio of from about 8 to about 9;
- (v) said chlorocarbons have a molecular weight of from about 120 to 150 atomic mass units and a carbon to chlorine ratio of from about 6 to about 7; and
- (vi) said aryl ethers have a carbon to oxygen ratio of from about 7 to about 10.

8.) (Cancelled.).

- 9.) (Original.) The composition of claims 1, 2 or 3, or the process of claim 4, or the method of claim 5 or 6, wherein said amides are represented by the formula cyclo-[(CR⁶R⁷)_nCON(R⁵)-], wherein n is selected from integers from 3 to 5, R⁶ and R⁷ are hydrogen or contain a single saturated hydrocarbon radical among the n methylene units, and R⁵ is selected from saturated hydrocarbon radicals containing from 1 to 12 carbon atoms, and where said amides have a molecular weight of from about 160 to about 250 atomic mass units and a carbon to oxygen ratio of from about 7 to about 16.
- 10.) (Original.) A method for delivering a compatibilizer to a compression refrigeration apparatus, comprising the step of adding the composition of claim 3 to said apparatus.
- 11.) (Currently Amended.) The composition of claims 1, 2 or 3, or the process of claim 4, or the method of claim 5 or 6, optionally comprising an effective amount of a fragrance.